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(54) **DEVICE FOR INSTALLING A PROFILE WHICH SUPPORTS AN AWNING IN A PERGOLA-LIKE STRUCTURE**

(57) A device for installing a profile which supports an awning in a pergola-like structure, of the type comprising uprights which support a frame with longitudinal members (33), cross-members and profiles (11) that are transverse to the longitudinal members (33) and are adapted to slide along the longitudinal members on adapted guides (12). The device (10) comprises:

- an L-shaped bracket (13) to be fixed with its portion (14), which is bottommost and substantially horizontal in the installation configuration of the profile (11), to a carriage (32), which is arranged in one of said guides (12),
- a connecting element (15) between one of the profiles (11) and the bracket (13), which is provided with a seat (16) designed to accommodate an end portion (17), which is uppermost in the installation configuration, of the bracket (13),
- fastening means (18) for fastening the bracket (13) to the connecting element (15).

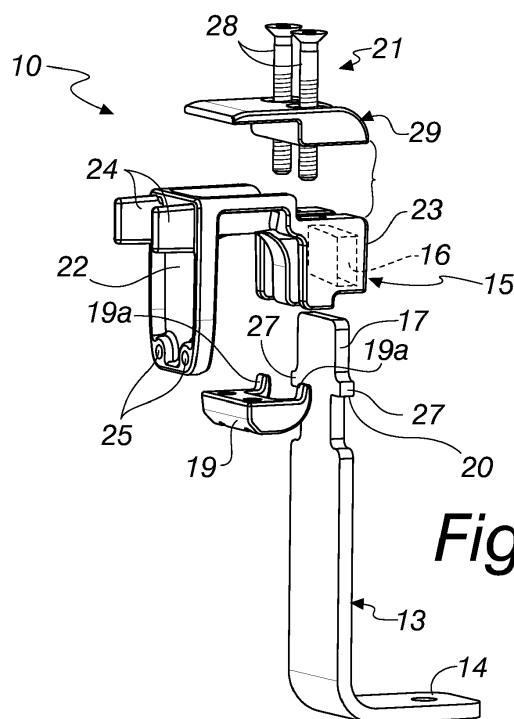


Fig. 1

Description

[0001] The present invention relates to a device for installing a profile which supports an awning in a pergola-like structure.

[0002] A pergola-like structure that supports an awning in an upward region is typically constituted by a rectangular frame with a pair of longitudinal members and a pair of cross-members, which rests on at least four up-rights. Between the two longitudinal members there are transverse profiles that support the awning, which are associated at their ends with guides that are adapted to slide along the longitudinal members. The transverse profiles are in fact movable and each one of them is conveniently coupled to the awning; they are adapted to slide along the longitudinal members, becoming mutually spaced apart in order to extend the awning or mutually closer together in order to collect it in folds.

[0003] Nowadays it is common to install the profiles by way of a device constituted by a Z-shaped or otherwise-shaped bracket the lower portion of which is fastened in advance to a guide, and a bracket shaped like an upside-down L the vertical side of which is fastened in advance to the end of the profile. During the installation of the structure, the two brackets are coupled by way of mechanical fastening at their upper portions.

[0004] Such operation is rather difficult for the operator, who has to simultaneously support the transverse profile, and it is also rather unsafe, because when fastening the two brackets by way of bolts the operator is forced to support the profile with one hand only, with the risk that the profile could fall on him disastrously.

[0005] The problems found are even more evident in pergola-like structures with curved profiles, because the very shape structure of the profiles makes the system even more unstable, at least until the profiles are fastened to the respective guides at both ends.

[0006] The aim of the present invention is to provide a device for installing a profile which supports an awning in a pergola-like structure, which is capable of improving the known art in one or more of the above mentioned aspects.

[0007] Within this aim, an object of the invention is to provide a device that facilitates the installation of transverse profiles in a pergola-like structure.

[0008] Another object of the invention is to make the installation of profiles in pergola-like structures safer for the operator.

[0009] Another object of the invention is to fasten the profile to the respective guide with precision.

[0010] Furthermore, another object of the present invention is to overcome the drawbacks of the known art in an alternative manner to any existing solutions.

[0011] Another object of the invention is to provide a device that is highly reliable, easy to implement and at low cost.

[0012] This aim and these and other objects which will become better apparent hereinafter are achieved by a

device according to claim 1, optionally provided with one or more of the characteristics of the dependent claims.

[0013] Further characteristics and advantages of the invention will become better apparent from the description of a preferred, but not exclusive, embodiment of the device according to the invention, which is illustrated by way of non-limiting example in the accompanying drawings wherein:

- 10 - Figure 1 is an exploded perspective view of the device according to the invention;
- Figure 2 is a side view of the device according to the invention during a step of installing a transverse profile of the pergola-like structure;
- 15 - Figure 3 shows, in the same view as Figure 2, the device according to the invention in a subsequent step of installing the profile;
- Figure 4 shows, again in the same view as Figure 2, the device according to the invention at the end of the installation of the profile;
- 20 - Figure 5 is a cross-sectional side view of the device according to the invention in the step of installation shown in Figure 3.

25 **[0014]** With reference to the figures, the device according to the invention, generally designated by the reference numeral 10, can be used for installing a profile which supports an awning in a pergola-like structure of the type comprising up-rights which support a frame with a pair of longitudinal members 33, cross-members and profiles 30 11 that are transverse to the longitudinal members 33 and are adapted to slide along the longitudinal members on adapted guides 12, which are conventional.

[0015] The device 10 comprises:

- 35 - an L-shaped bracket 13 to be fixed with a portion 14 thereof, which is bottommost and substantially horizontal in the installation configuration of the profile to a carriage 32, which is arranged in a guide 12,
- 40 - a connecting element 15 between one of the profiles 11 and the bracket 13, which is provided with a seat 16 designed to accommodate an end portion 17, which is uppermost in the installation configuration, of the bracket 13,
- 45 - fastening means 18 for fastening the bracket 13 to the connecting element 15.

[0016] Such fastening means 18 comprise:

- 50 - a pawl-like first component 19, which is adapted to retain the bracket 13 with its end portion 17 in the seat 16, comprising at least one pawl 19a with which it is adapted to be arranged in the active configuration below a corresponding shoulder 20 of the bracket 13,
- 55 - at least one second component 21, which connects the first component 19 to the connecting element 15, allowing the oscillation thereof in order to pass from an inactive configuration to the active configuration.

[0017] In the installation configuration of the profile 11, the portion 14 of the bracket 13 is the bottommost one and is arranged substantially horizontally, while the remaining portion, where the end portion 17 is present, is substantially vertical.

[0018] The bracket 13, which is arranged to form an L as shown in the figures, has two lateral wings 27 which protrude from opposite edges below the end portion 17, so as to create a pair of corresponding shoulders 20. Conveniently, the first component 19 has a pair of pawls 19a which extend on opposite sides and are each adapted to be arranged below a corresponding shoulder 20.

[0019] The two pawls 19a are directed upward so as to prevent an accidental displacement of the first component 19 from the active configuration.

[0020] The connecting element 15, as can be seen in particular in the exploded perspective view in Figure 1, is constituted by a contoured body with a first portion 22 for butt fastening to the end of the profile 11 and a second portion 23 which is adapted to accommodate the end portion 17 from below in the seat 16.

[0021] The first portion 22 has two protrusions 24 to be inserted into special seats which are at the end of the profile 11, and holes 25 for fastening to the profile by way of screws 26, as illustrated in the cross-sectional view in Figure 5.

[0022] There are two second components 21, which consist of a pair of screws 28 that pass through the connecting element 15 at adapted slotted holes which are on the second portion 23 and at least partially through the first component 19. The slotted shape of the holes allows the fastening means 18, which are constituted by the first component 19 and by the screws 28, to oscillate, allowing the former to pass from an inactive configuration to the active configuration.

[0023] The first component 19 expressly has two threaded holes to receive the screws.

[0024] The device 10 advantageously also comprises a guide for the edges of the awning, which is constituted by a retaining element 29 for a flap of fabric, to be coupled above the connecting element 15 with the interposition of the flap of that awning.

[0025] The retaining element 29 can be coupled to the connecting element 15 by way of the screws 28 that pass through it at a coupling portion 30 thereof, indicated in Figure 2, and for such purpose it conveniently has two slotted holes, corresponding to the holes of the connecting element 15, in which the screws 28 can oscillate.

[0026] It furthermore has a portion 31, indicated in Figure 2, that overlaps the element for connection, creating an interspace between the two for the flap of fabric.

[0027] The bracket 13 is preferably made of steel, while the other components are preferably made of aluminum, giving lightness to the system that is rendered integral with the profile during the installation.

[0028] Use of the device according to the invention is the following.

[0029] The bracket 13 is fastened in advance to an

adapted carriage 32 in a guide 12, as shown in Figure 5, by way of bolts, and the connecting element 15 is fastened in advance to the end of the profile 11, with the first portion 22 thereof.

[0030] The screws 28 are inserted in succession through the elongated holes of the retaining element 29 and of the connecting element 15 and are screwed into the first component 19, without tightening them. The screws 28 and the component 19 are therefore free to oscillate integrally.

[0031] The operator brings the system, constituted by the profile 11, the connecting element 15 and the fastening means 18, toward the bracket 13, and inserts the end portion 17 of the latter into the seat 16. The first component 19 is then brought to the active configuration of holding the position of the bracket 13, i.e. with the pawls 19a below the respective shoulders 20, and the screws 28 are tightened.

[0032] For the installation of each profile, one device 10 is used for each end thereof.

[0033] At the end of the installation of all the profiles, the lateral edges of the awning are arranged in the guides between the portion 31 of the element 29 and the connecting element 15 in order to hold the fabric in position and ensure a better outflow of water in the event of rain.

[0034] It should be noted that the device 10 according to the invention allows to fasten the profiles to the guides after having placed them stably on the respective brackets 13. Therefore, it is evident that for the operator it is possible to install the profiles more easily and quickly, as well as more safely, with respect to conventional devices.

[0035] It should also be noted that the connecting element 15, owing to its particular shape, enables stable resting on the bracket and in a precise position.

[0036] In practice it has been found that the invention fully achieves the intended aim and objects by providing a device that facilitates the installation of transverse profiles in a pergola-like structure and makes such installation safer and more precise.

[0037] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. Moreover, all the details may be substituted by other, technically equivalent elements.

[0038] In practice the materials employed, provided they are compatible with the specific use, and the contingent dimensions and shapes, may be any according to requirements and to the state of the art.

[0039] The disclosures in Italian Patent Application No. 102017000110313 from which this application claims priority are incorporated herein by reference.

[0040] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A device for installing a profile which supports an awning in a pergola-like structure, of the type comprising uprights which support a frame with longitudinal members (33), cross-members and profiles (11) that are transverse to the longitudinal members (33) and are adapted to slide along said longitudinal members on adapted guides (12), said device (10) being **characterized in that** it comprises:
 - an L-shaped bracket (13) to be fixed with its portion (14), which is bottommost and substantially horizontal in the installation configuration of the profile (11), to a carriage (32), which is arranged in one of said guides (12),
 - a connecting element (15) between one of said profiles (11) and said bracket (13), which is provided with a seat (16) designed to accommodate an end portion (17), which is uppermost in said installation configuration, of said bracket (13),
 - fastening means (18) for fastening said bracket (13) to said connecting element (15).

2. The device according to claim 1, **characterized in that** said fastening means (18) comprise:
 - a pawl-like first component (19), which is adapted to retain said bracket (13) with its end portion (17) in said seat (16), and which comprises at least one pawl (19a) with which it is adapted to be arranged in the active configuration below a corresponding shoulder (20) of said bracket (13),
 - at least one second component (21), which connects said first component (19) to said connecting element (15), allowing the oscillation thereof in order to pass from an inactive configuration to said active configuration.

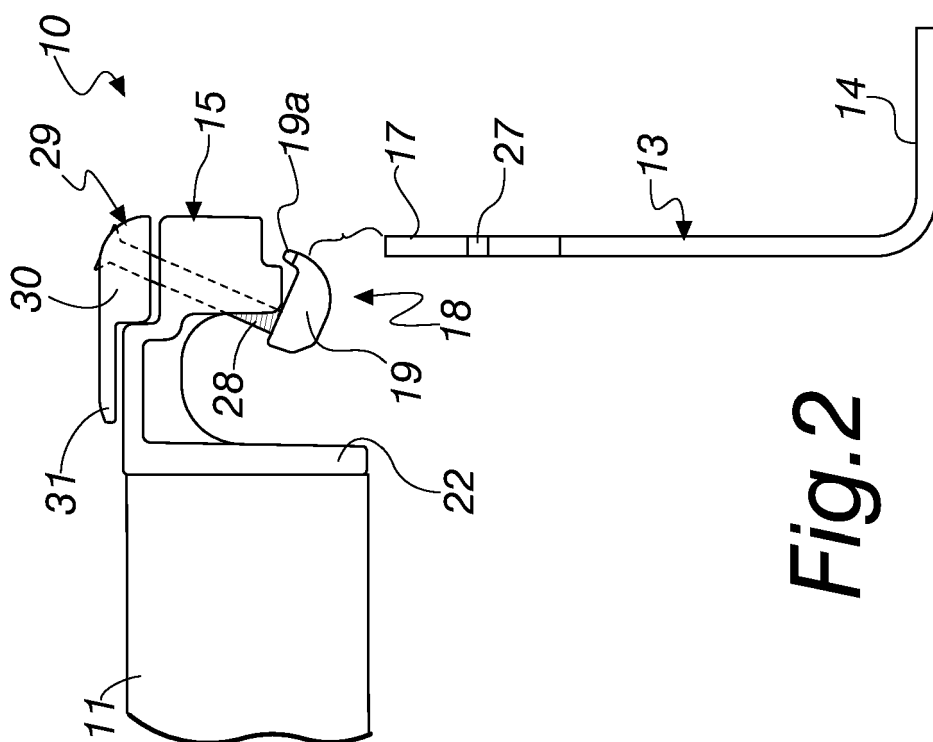
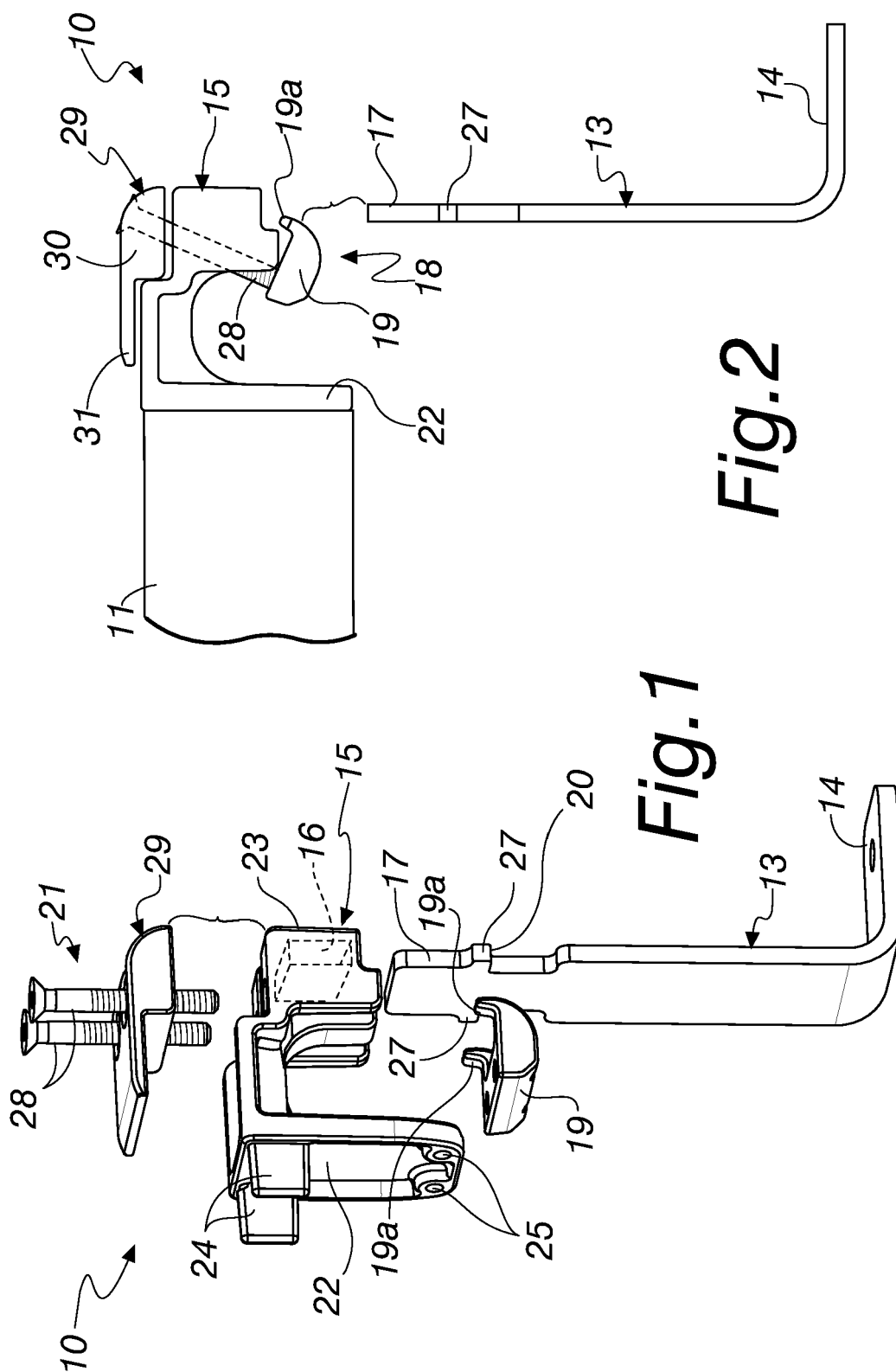
3. The device according to one or more of the preceding claims, **characterized in that** there are two of said second components (21), which consist of a pair of screws (28) that pass through said connecting element (15) at adapted slotted holes and at least partially through said first component (19).

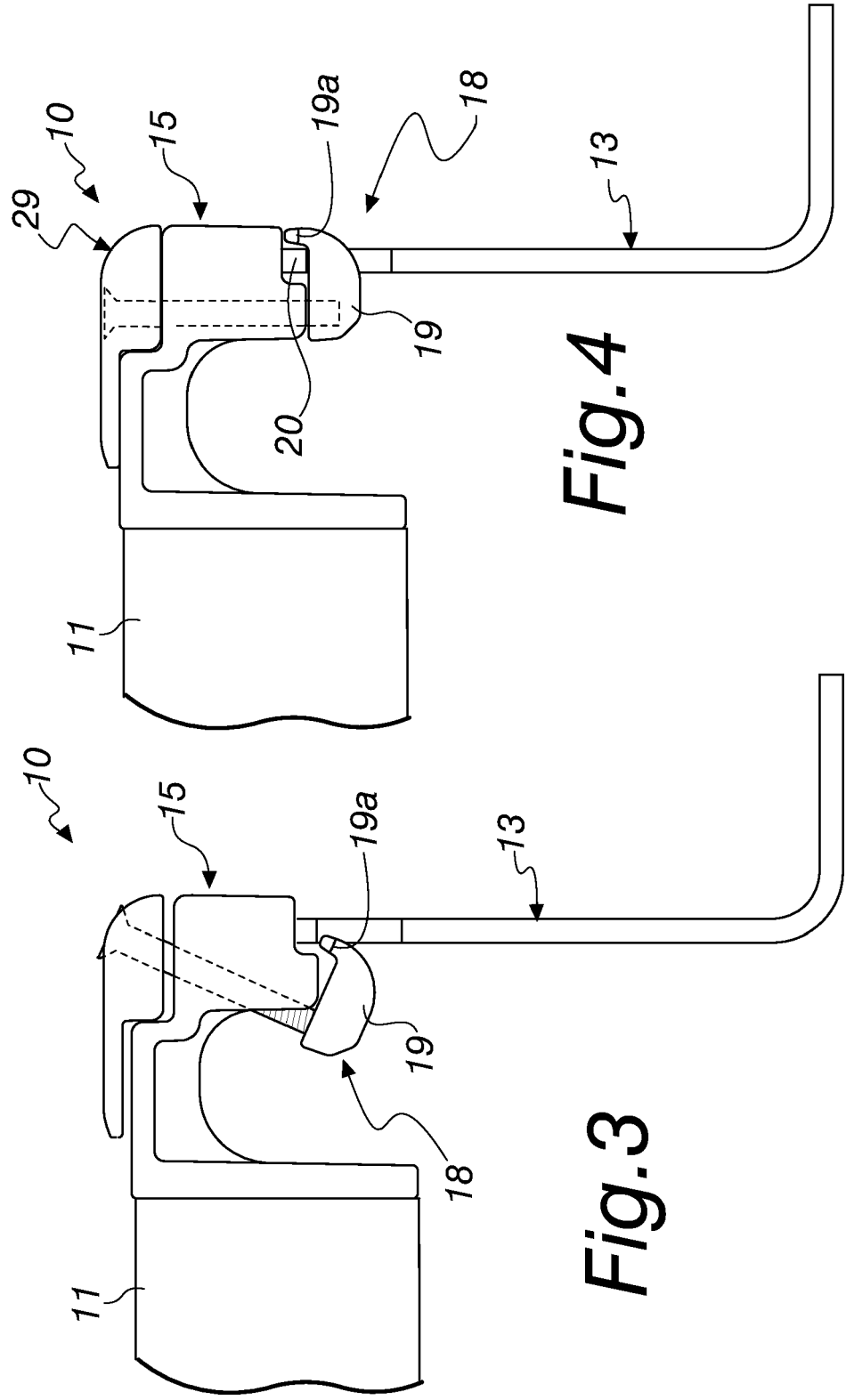
4. The device according to one or more of the preceding claims, **characterized in that** it comprises a guide for the edges of the awning, which is constituted by a retaining element (29) for a flap of fabric, to be coupled above said connecting element (15) with the interposition of the flap of said awning.

5. The device according to one or more of the preceding claims, **characterized in that** said retaining element (29) can be coupled to said connecting element (15) by way of said at least one screw (28) which passes through it at a portion for coupling (30) thereof.

6. The device according to one or more of the preceding claims, **characterized in that** said connecting element (15) is constituted by a contoured body which has a first portion (22) for butt fastening to the end of said profile (11) and a second portion (23) which is adapted to accommodate said end portion (17) from below in said seat (16).

7. The device according to one or more of the preceding claims, **characterized in that** said bracket (13) arranged in an L-shaped configuration has two lateral wings (27) which protrude from opposite edges below said end portion (17) so as to create a pair of corresponding said shoulders (20) and said first component (19) has a pair of said pawls (19a) which extend on opposite sides and are each adapted to be arranged below a corresponding one of said shoulders (20).





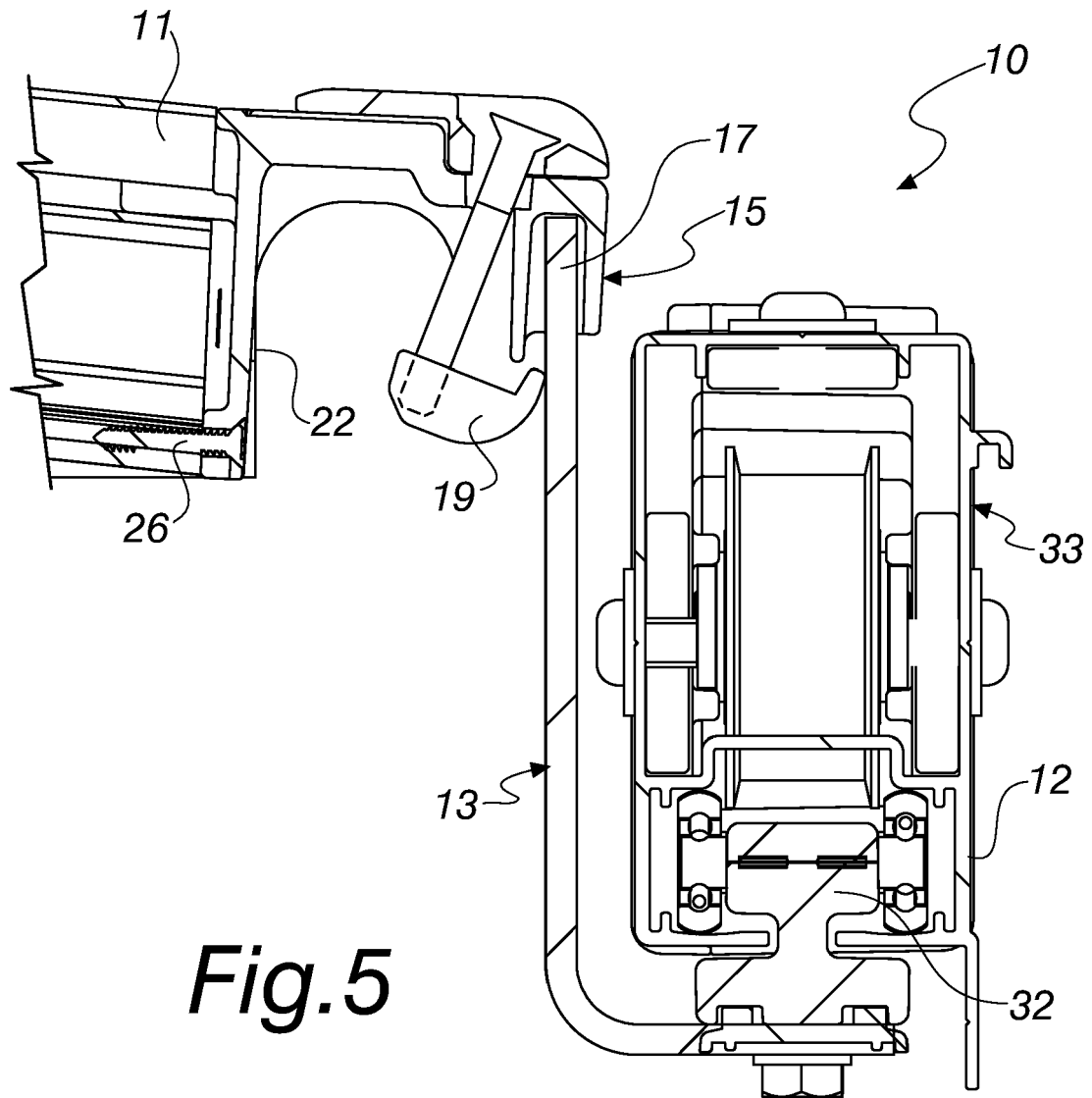


Fig.5



EUROPEAN SEARCH REPORT

Application Number
EP 18 19 5356

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 98/31912 A1 (MARVINGARDENS LTD [US]) 23 July 1998 (1998-07-23)	1,3	INV. E04F10/06 E04F10/02
A	* figure 2 *	2,4-7	
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A	* figure 1 *	2-7	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 31 January 2019	Examiner Merz, Wolfgang
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 19 5356

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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